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NEW PALMS FROM FIJI

By
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By MAX BURRET

Most of the plants described in this paper were collected by Dr. A. C. Smith in 1933 and 1934, with the aid of a Bishop Museum Fellowship in Yale University. The first set of specimens is deposited in the herbarium of Bernice P. Bishop Museum.

For convenience, one species from Samoa is described here.

Genus **PRITCHARDIA** Seemann and H. Wendland

Pritchardia thurstoni F. von Mueller and Drude.

Fiji: Fulanga, A. C. Smith 1230, on limestone cliff in lagoon. Local names are *masai* and *viu*. The species is very common on the small islets in the lagoon; it has previously been collected only once in a wild state.

Genus **EXORRHIZA** Beccari

Exorrhiza smithii, species nova.

Palma 4-8 m alta; caudex robustus curvatus annulatus; frondis vagina cylindrica, ad apicem extus fusco-leproso-maculata; petiolus evolutus, inter minores, visum fragmentum inferius 20 cm longum, ad basin 4 cm, superne 2.5 cm in diam. metiens, marginibus acutis, supra concavus, subtus rotundato-triangularis, in modo jam descripto fusco-maculatus; segmenta numerosa, regulariter disposita, directione haud variantia, a rhachi sat patentia sed superne cernua, sat robusta, linearia, haud curvata, maxima visa 62 cm longa, 2.4 cm lata, basi leviter reduplicata, superne sensim attenuata et acuminata, longe anguste producta, in apices 2 perangustos profunde fissa, 3-nervia, costa media et nervo secundario fere aequivalido dextra sinistra percursa, nervis tertiariis numerosis densis conspicuis, subtus iisdem nervis et tertiariis densis, prominentibus, squamulis minutis fuscis dense praeditis, costa media inferne paleis badiis linearibus in dimidia parte affixis notata; segmenta superiora sensim latitude et longitudine decrescentia, sensim longe anguste acuminata; spadix infra frondes, scopiformis, duplo-(forsan triplo?) ramosus; rami 2 visi ramulos floriferos 5 gerentes, applanati, breves; ramuli rhachi brevi inserti, basi bractea late ovata breviter subito acuminata suffulti, pro rata tenues, 20 cm circ. longi, i. s. longitudinaliter dense striati, glabri, apice in filum flexuosum sat longum producti; florum glomeruli in spira densa dispositi, in alveolis sat profundis; axis margine triangulariter nonnihil producto, superne curvato, acuto; glomeruli ad maximam ramorum partem 3-flori, bracteis conspicuis late ovatis, flore ♀ intermedio, ♂ binis superpositis, ad ramorum apicem floribus ♂ tantum; flores ♂ non visi, omnes delapsi, ♀ parvi, ovati; sepala ovata; petala ovata, apice breviter triangulari valvata; fructus ignoti.

Fiji: Vanua Levu, Thakaundrove, eastern buttress of Mount Ndi-keva, altitude 900 meters, June 5, 1934, A. C. Smith 1879, type.

It is a species related to *E. wendlandiana* Beccari, but with the spadix much smaller, the branchlets much shorter and thinner, and the leaf segments straight rather than falcate. The segments of the new species are perhaps not so deeply split at the apex, and on the under surface bear more densely congested brown scales. I have not seen the male flowers of *E. smithii*, which are probably smaller than those of *E. wendlandiana*. The following new Samoan species is also of this alliance.

Exorrhiza vaupelii, species nova.

Frondis rhachis superne triangularis, in marginibus crispato-floccoso-fusco-tomentosa, in lateribus et subtus atro-leproso-punctulata; segmenta numerosa, regulariter disposita, directione haud variantia, majora visa 80 cm circ. longa, usque 3.4 cm lata, textura firma, basi modice, sed conspicue reduplicata, linearia, haud curvata, maxima latitudine in parte inferiore sita, dein sensim attenuata et longe anguste sensim acuminata, in apices 2 angustos aequales fissa, 3-nervia, costa media valde prominente, ad basin modo descripto fusco-tomentosa, subtus inferne paleis badiis linearibus numerosis densissimis notata, nervis lateralibus praecipue ad basin supra plicato-prominentibus, minus superne; nervi tertiarii numerosi, utrinque conspicui, subtus squamulis atris densis praediti; segmenta superiora longitudine et latitudine decrescentia.

Samoa: Savaii, south of Mangaloa, altitude 1200 meters, F. Vaupel 605, type, in Herb. Berlin.

E. vaupelii resembles *E. smithii* in its linear leaflets which are not at all curved, with very numerous minute dark scales on the lower surface. I have little doubt as to the proper genus; the only other genus to be compared is *Chinostigma*. *C. oncorhynchum* Beccari has not the dense minute scales on the under surface of the leaflets. I have not seen the leaflets of *C. samoense* H. Wendland, but the above-mentioned minute scales are apparently lacking, and the rachis is said to be quite glabrous. *C. porcellianum*, from the description, is very close to *C. samoense*.

Genus VEITCHIA H. Wendland

Veitchia joannis H. Wendland.

Fiji: Vanua Levu, Thakaundrove, southern slope of Korotini Range, below Navitho Pass, 300-650 meters, A. C. Smith 575. In Seemann's "Flora Vitiensis" this palm is mentioned as being very common throughout Fiji. In the wet forest of Vanua Levu, however, it is rare, having been observed only twice by the collector. It appears to be the tallest palm of the region, the present specimen being over 100 feet in height.

Genus **BALAKA** Beccari**Balaka longirostris** Beccari.

Fiji, without exact locality, D. Jeoward, in 1894 (non vidi).

This palm has been described by Beccari only from fruits, without perianth. It has the largest fruit as yet known in the genus *Balaka*. The plant below described is possibly identical with *B. longirostris*, but from the description and figure of the fruit of that species, I believe the new species to be quite distinct. The fruits of *B. longirostris* are 32 mm long; the fruits of our new species are 40 mm and more long, having more excavate sides, the rostrum much broader, and the sclerosoms of the surface quite distinct, in which characters it differs from the description and figure of Beccari's species. The new species may be known as:

Balaka macrocarpa, species nova.

Palma 4-8 m alta, caudice gracili, 4-6 cm in diam. metiente; frondes ex fragmentis inter majores, circ. 2 m longae; vagina ut petiolus et rhachis fusco-furfuracea, demum minute fusco-leprosa, vagina cylindrica, robusta, dorso i. s. 6 mm in diam. metiens, fibris densis numerosis percursa, apice sat breviter contracta; petiolus 13 cm circ. longus, robustus, basi 1.2 cm, apice 1 cm fere latus, supra canaliculatus, marginibus acutis, dorso late angulato-rotundatus; segmenta prob. sat numerosa, infima ambo angusta, linearia, 8-15 mm lata, rhacheos prob. mediae 2 visa in margine superiore 38-41 cm longa, leviter sigmoidea, alterum nervis primariis 2 percursum, superne 10.5 cm latum, inferne sensim angustatum, ad basin 3.2 cm in diam., rhachin secus 6 cm latum, apice oblique lobulato-praemorsum, alterum costa media unica, ad apicem 7.2 cm latum, basi nonnihil angustiore, rhacheos fragmentum apicale summis segmentis ambobus latissimis, rhacheos 21.5-24.5 cm amplectentibus, apice ipso oblique praemorso, obtuse triangulariter lobulato, 17 cm lato, nervis primariis 8 percursis, segmento inferne sequente viso leviter cuneato, 35 cm longo, superne 4.5 cm lato, nervo primario uno percursu; spadix 3 dm circ. longus; rhacheos fragmentum ut rami ramulique i. s. sat acute longitudinaliter angulosi, densissime conspicue granulosi; rami primarii 2 visi, basi bractea brevi late rotundata suffulti, ramulus 2-3; ramuli fructiferi paulo curvati, ad fructuum insertiones modice flexuosi, inter robustiores, in dimidia circ. parte 2-2.5 mm in internodiis in diam. metientes, superne sensim angustati, visi 15-20 cm longi, fructibus spiraliter dispositis; ex insertionibus florum glomeruli ad magnam ramuli partem 3-flori, flore ♀ intermedio, ♂ binis dextra sinistra insertis, superne 2-flori, flore femineo et masculo juxtapositis, demum flore ♂ solitario; fructus basi bracteis erectis late rotundatis calyculum humilem, 1 mm altitudine paulo superantem formantibus cincti, magni, i. v. aurantiaci, i. s. brumeo-flavidi, 4.2 cm longi, quadrangulares, 1.5 cm in diam. metientes, angulis longitudinalibus acutis valde prominentibus, lateribus inter angulos nonnihil excavatis, pericarpium rugis perpaucis, sed plerumque prominentibus transverse vel plus minus oblique pertensis, rostrati; rostrum excentricè productum, crassum, angulariter conicum, 13 mm longum; perianthium cupuliforme, laxè accumbens;

calyx delapsus; corolla 12 mm alta, petalis late rotundatis, apice breviter triangulari haud producto, obsolete, longitudinaliter dense nervoso-striatus; epicarpium sclerosomatibus densis lineolatis conspicuis; pericarpium carnosum, siccum pro rata sat evolutum; endocarpium pergameum; semen acute 4-angulare, 22 mm longum, 6-7 mm in diam. metiens, rostrum conspicue anguste acuminatum, 8-9 mm longum; raphe ab apice in angulo longe decurrens, ramis in quoque latere 4, dorso sat numerosis descendentibus, parce furcatis vel anastomosantibus; embryo basilaris; albumen aequabile; flores ♂ haud perfecte evoluti visi 5 mm longi, ovato-oblongi, fusco-leproso-maculati; calyx 2.5 mm altus, sepalis basi umbonatis, superne nervoso-striatis, apice late rotundatis, ciliatis; petala oblonga costata; stamina ∞; filamenta filiformia; antherae lineares, basi sagittatae, apice incisae, dorso ad basin affixae; pistillodium inferne dilatatum, superne in stylum productum, longitudine staminum.

Fiji: Vanua Levu, Thakaundrove, Natewa Peninsula, Uluingala, altitude 600-820 meters, June 15, 1934, A. C. Smith 2007, type.

This slender and attractive palm, known as *niuniu*, was seen only once. Several trees were growing close together in the shade of large forest trees, on a sharp well-drained slope.

Balaka cuneata, species nova.

Palma 2-5 m alta; caudex 1.5 cm circ. in diam., annulis, ut videtur, sat dissitis; frondis vagina fusco-furfuracea, in latere petiolo opposito producta; petiolus circ. 20 cm longus, sordide flavido-tomentosus atque fusco-lepidoto-leprosus; rhachis 65 cm fere longa, furfuracea et fusco-leprosa, segmentis utrinsecus 9; segmenta sat regulariter disposita, infimum cujusque lateris quam reliqua aliquanto minus, praecipue angustius, media circ. 23 cm longa, 7 cm lata, in margine superiore producta, margine superiore oblique lobulato-praemorsa, apicalia confluentia, nervis primariis 3 percurta, rhacheos 4.3-5.5 cm amplectentia, in margine superiore 18 cm longa, 6-7 cm in diam., oblique lobulato-praemorsa, reliqua nervo primario unico percurta, omnia supra nitentia, glabra, subtus fere opaca, ad margines et in segmentis apicalibus ambobus ad nervos secundarios fusco-furfuracea, papyracea, cuneiformia, ad basin haud curvata, vix reduplicata, costa basin versus haud curvata; spadix 35 cm fere longus, duplicato-ramosus; pedunculus 13 cm longus, applanatus, decidue fusco-furfuraceus, spathe inferioris annulo ad basin, superioris 3 cm altius sito atque bractea semiannulari 4 cm supra eum notatus; rhachis vix flexuosa, ramis primariis ramificatis 4 atque simplicibus reliquis 7, infimis 2 ramulos fructiferos 4 (secundo) vel plures (infimo), sequentibus 3-2 gerentibus; ramuli fructiferi majores usque 16 cm longi visi, plurimi breviores, omnes superne sensim attenuati, vix curvati, haud flexuosi; fructus ex glomerulis in spira perlaxe dispositis i. s. cum periantho 1.3 cm longi, usque 6 mm lati, oblique nonnihil rostrati, inferne 4-angulares, sclerosomatibus densissime gibbosi, nigri; perianthium sat explanatum, tenue; sepala late rotundata; petala lata, margine ciliata, longitudinaliter dense nervoso-striata, apice triangulari valvata.

Fiji: Vanua Levu, Thakaundrove, hills between Vatukawa and Wainio Rivers, Ndrekeniwai Valley, altitude 200-500 meters, November 24, 1933, A. C. Smith 577, type; Natewa Peninsula, hills south of Natewa, altitude 400-600 meters, A. C. Smith 1950.

The species, locally known as *mbalaka*, is near *B. secmannii*, (H. Wendland) Beccari, from which it differs by the cuneate leaflets, which, with the costa, are not curved at the base. The spadix is much more ramified than that of *B. secmannii*. The other species of the genus known from Fiji have much shorter and broader deltoid leaflets. *B. longirostris* Beccari has fruits twice as long and thick.

Genus VITIPHOENIX Beccari

Subgenus 1. EUVITIPHOENIX, subgenus novum

Frondis segmenta apice praemorsa; bractea florem ♀ et fructum cingentes explanatae angustissimae obsoletae.

This subgenus includes the following species: *V. filifera* (H. Wendland) Beccari, *V. vitiensis* (H. Wendland) Burret, *V. pickerinɡii* (H. Wendland) Burret, *V. pauciflora* (H. Wendland) Burret, and:

Vitiphoenix (Euvitiphoenix) smithii, species nova.

Palma 16 m alta; frondes 3 m longae; vaginae apex visus, extus ut petiolus et rhachis praecipue subtus cinereo- (an in vivo fusco)-tomentosus et minute dense vel sat dense fusco-lepidotus; petioli fragmentum a vaginae apice 16.5 cm longum visum subtus rotundato-triangulari, marginibus acutis, supra marginem versus paulo excavatum, dimidium secus leviter convexum, basi 18 mm latum, ad apicem vix angustius; segmenta numerosa, regulariter disposita, maxima visa 41.5 cm longa, usque 5 cm lata, leviter sigmoidea, basin versus conspicue, superne leviter curvata, maxima latitudine ad dimidium vel modice infra sita, interne nonnihil fere contracto-angustata, ad basin angusta, 8 mm circ. lata, paulo sed conspicue reduplicata, superne nonnihil angustata, ad apicem oblique lobulato-praemorsum 1.8 cm tantum lata, supra nitentia, subtus opaca, sub lente saepe minutissime gibbosa, costa media unica, subtus basin versus paleis badiis linearibus densis praedita, nervis marginalibus validis, interne subtus fusco-lepidoto-punctulatis, nervis minus validis sat numerosis, ulterioribus nullis; segmenta superiora sensim longitudine et latitudine decrescentia, fere rectilineariter, maxima latitudine in dimidia circ. sita, interne nonnihil angustata, reduplicata sed etiam apicem versus conspicue angustata, apice oblique lobulato-praemorsa, apicalia ambo quam sequentia conspicue latiora, 2 cm circ. lata, 10 cm in margine superiore longa, apicem versus paulo attenuata, apice transverse lobulato-praemorsa; spadix infra frondes, 1 m longus, 4-plo multiramis; rhachis et rami visis glabri; rhachis et rami primarii applanato-subtriangulares, rami (visi) basi bractea haud producta, anguste lineolata; ramus primarius maximus visus 30 cm longus; rami ramulique i. s. longitudinaliter lineolati, ramuli ultimae ordinis plurimi, breves et perbreves, pauciflori, longissimus visus 6.5 cm longus, majores 2.5 cm minores numerosi 1 cm vix aequantes, fructibus 2-1, omnes inter tenuiores, in internodiis 1 mm circ. in diam, metientes, superne attenuati, ad nodos leviter flexuosi; florum glomeruli inferiores 3-flori, ♀ medio, ♂ binis juxtapositis, ad apicem ramulorum 2 prob. masculi; fructum insertiones

obliqui, quam axis duplo latiores, bracteis explanatis; fructus i. s. cum perianthio 12 mm longus, ambitu clavato-oblongus, superne usque 7 mm in diam., apice haud producto, breviter conico, extus glabri, longitudinaliter dense fibroso-lineolati, sclerosomatibus nullis; perianthium fructiferum 6-7 mm altum, cupuliforme, ore 5-6 mm in diam. metiente; calyx scutelliformis, sepalis late rotundatis, nervoso-striatis; corolla 3-plo fere altior, petala nervoso-striata, late rotundata, imbricata, apice breviter triangulari valvata; mesocarpium fibris numerosis, endocarpium tenue; semen ambitu oblongum, leviter claviforme, teres, 11 mm longum, superne 5.5 mm in diam.; rhaphe linearis, totum latus sequens, ramis ex rhapheos parte superiore et dorso paralleliter descendentibus, parce anastomosantibus; embryo basilaris; albumen aequabile; staminodia in perianthii basi perpauca, visa 2-3 sat late dentiformia; flores ♂ nondum perfecte evoluti visi 4 mm longi, ambitu ovato-oblongi; calyx 2 mm altus, sepalis late rotundatis ciliatis; petala sat crassa; stamina numerosa, filamentum filiforme, demum prob. sat evolutum; antherae oblongo-lineares, basi sagittatae, apice incisae, dorso ad basin affixae; pistillodium inferne fusiforme, superne filiforme, longitudine staminum.

Fiji: Kandavu, hills above Namalata and Ngaloa Bays, altitude 200-400 meters, October 16, 1933, A. C. Smith 162, type.

V. smithii differs from the other known Fijian species, except *V. vitiensis*, which is described only from leaves, by having the spadix more branched, with the thin branchlets much shorter and with few fruits. The leaflets of the new species are conspicuously attenuate towards the apex, and the rachis is tomentose below in a very characteristic peculiar manner, whereas in *V. vitiensis* the superior leaflets do not taper towards the end, the rachis being only leprose rather than tomentose.

Subgenus 2. **ACMOPHOENIX**, subgenus novum

Frondis segmenta apice acuta; bractee florem ♀ et fructum cingentes surgentes, conspicuae, calyculum formantes.

Although the following two species differ considerably from those of *Eucitiphoenix*, differences in the fruits, seeds, and flowers do not seem sufficient to necessitate a new genus.

Vitiphoenix (Acmophoenix) petiolata, species nova.

Palma 15-35 m alta; vagina ut petiolus et rachis subtus furfuracea atque punctato-fusco-furfuracea; petiolus in fragmento ab apice vaginae 25 cm circ. longo visus, supra excavatus, marginibus acutis, subtus rotundato-triangularis; segmenta infima jam sat dense sese sequentia, omnia regulariter disposita, prob. dimidia circ. racheos lanceolata, 55 cm longa, 4 cm lata, maxima latitudine in tertia inferiore sita, inferne sensim angustata, basi sat angusta, leviter sed conspicue curvata, superne sensim attenuata et acuminata, inaequaliter bifida, apice superiore multo longiore, anguste, sat longe acuminato, inferiore brevi, textura rigida, costa media subtus basin versus paleis anguste linearibus, i. s.

tortis dense praedita, nervis marginalibus sat robustis, minus validis dextra sinistra pluribus, paulo conspicuis, tenuibus obscuris, segmenta superiora longitudine et latitudine decrescentia, lineari-lanceolata, superne attenuata, apice breviter bifida: spadix 3-plo ramosus, pedunculatus, rhachis, ut rami et ramuli inferne longitudinaliter angulosi, i. s. dense, ramuli superne minus dense gibbosi; rami primarii ramosi sat numerosi; ramuli floriferi 10-12 cm longi, in internodiis dimidiae partis i. s. 1.5 mm in diam., raro paulo crassiores, superne leviter flexuosi, usque ad apicem fere glomerulis in spira laxa dispositis, 3-floris, ♀ internodio, ad apicem tantum 2-floris, masculis ad summum apicem breviter fere filiformes; flores ♂ 7 mm circ. longi, oblongi; calyx i. s. patens, sat explanatus, 4 mm in diam. metiens, sepalis late rotundatis; petala oblonga; stamina numerosa, circ. 50; filamenta filiformia, quam antherae breviora; antherae lineares, 3 mm longitudine superantes, basi sagittatae, apice incisae, dorso basi affixae; pistillodium filiforme, apice bifidum, an semper?, longitudine fere staminum; bractee florem ♀ cingentes surgentes, conspicuae; flos ♀: sepala late rotundata, petala late rotundata, apice triangularia; fructus inter minores angustiores, cum perianthio i. s. 1.8 cm longus, 0.6 cm in diam. metiens, ambitu oblongo-lanceolatus, breviter sed conspicue rostratus, extus sclero-somatibus densissime sat longe lineolatus; pericarpium i. s. 0.5 mm in diam. vix superans; mesocarpium fibris numerosis percursum; endocarpium tenue; semen ambitu oblongo-lanceolatum, 1 cm fere longum, 4 mm in diam., teres, apice basique rotundatum; albumen aequabile; embryo basilaris; perianthium cupulare, 5 mm altum, 5 mm in diam.; calyx humilis, sepalis late rotundatis, extus nervosis; petala late rotundata, apice breviter triangulari sed tamen quam margines conspicue altiore; staminodia pauca, plus minus late dentiformia.

Fiji: Vanua Levu, Mbua, southern slope of Mount Seatura, altitude 500 meters, April 28, 1934, A. C. Smith 1687, type.

This palm, growing in dense wet forest, is one of those known as *niu-niu*. Compared to *V. sessilifolia* (below described), the petiole in *V. petiolata* is quite conspicuous, the fruit is much smaller, narrower, and rostrate at the top, the calyx of the male flowers is patent and explanate, the triangular valvate top of the petals of the fruiting perianth is conspicuously longer than the margins, whereas the top of the petals in *V. sessilifolia* is shorter than the protracted margins.

Vitiphoenix (Acmophoenix) sessilifolia, species nova.

Palma 10 m alta; frondis vagina cylindrica, ut rhachis praecipue subtus punctulato-fusco-leprosa atque plus minus decidue furfuracea; frondes quam homo adultus modice longiores, superne cernuae, segmentis regulariter dispositis, majoribus, ut videtur levissime sigmoideis; petiolus nullus vel fere, basi 1.8 cm latus, ut rhachis inferior supra excavatus, dorso rotundato-triangularis, circ. 7 cm longus, sed segmento secundo utrinsecus 10-11 cm ab infimo remoto; segmenta infima angusta, dimidiae prob. rhacheos lanceolata, 50 cm circ. longa, 5 cm lata, rigida, inferne nonnihil sat subito angustata, superne longe acuminata, acuta, an bifida apicibus plus minus destructis incerte, utrinque viridia, costa media paleis subtus carens, et marginalibus nonnihil prominentibus, minus validis dextra sinistra paucis, paulo conspicuis, tenuibus nullis, frondis fragmenti apicalis segmenta longitudine et latitudine decrescentia, anguste lineari-lanceo-

lata, sensim acuminata, acuta; spadix 3(4?)-plo ramosus, pedunculatus, ramis primariis inferioribus longe pedunculatis pluribus; rami primo fusco-furfuracei, longitudinaliter plus minus angulosi; ramuli 9, 5-6 cm longi, in dimidio in internodiis 1 mm diam. paulo superantes, superne sensim attenuati, ad apicem sat tenues, superne ad fructuum insertiones levissime flexuosi; florum glomeruli usque ad ramulorum apicem 3-flori, flore ♀ intermedio, ♂ juxtapositis, ♀ bracteis surgentibus conspicuis circumdato; flores ♂ 6 mm longi, ambitu elliptico-oblongi, apice rotundati; calyx corollae arcte accumbens, 2.5 mm altus, 3 mm in diam. metiens, sepalis late rotundatis, minute ciliatis, inferne crassis, umbonatis; petala oblonga, crassa, apice obtusa; stamina numerosa, circ. 40; filamenta filamentosa, quam antherae breviores; antherae lineares, 2-3 mm fere longae, basi sagittatae, apice plerumque incisae, dorso ad basin affixae; pistillodium ad basin ipsam leviter fusiforme, superne filiforme, longitudine staminum, ut videtur rarissime haud evolutum; flores ♀ juveniles: sepala late rotundata, minute ciliata, inferne crassa, umbonata; petala rotundata, apice triangulari valvata; ovarium ambitu ovato-oblongum, stigmatibus 3 triangularibus; staminodia ut videtur plus minus in anulum connata; fructus maturus aurantiacus, i. s. cum perianthio 2.2 cm longus, ambitu oblongus, 1 cm in diam., apice rotundatus, apice mamillari, perbrevis latissime conico imposito, epicarpio minute longitudinem secus lineolato; pericarpium 1 mm in diam. metiens, mesocarpio fibris numerosis totam longitudinem secus percurso, endocarpio tenuiter pergammaceo, fragili; semen ambitu oblongum, 11 mm longum, 6 mm in diam. metiens, apice basique rotundatum, rraphe totum latus secus extensa linearis, ramis ex rrapheos parte superiore pluribus atque dorso descendentibus parce furcatis et anastomosantibus; embryo basilaris; albumen aequabile; perianthium fructiferum cupuliforme, 7 mm. altum; calyx sat explanatus, humilis, 7 mm in max. diam. metiens, sepalis late rotundatis, longitudinaliter nervoso-striatis; petala latissime rotundata, apice valvato breviter triangulari, quam margines rotundati breviora; staminodia perpaucula, latissime dentiformia.

Fiji: Vanua Levu, Thakaundrove, Yanawai River region, Mount Kasi, altitude 300-430 meters, May 10, 1934, A. C. Smith 1784, type.

Like the preceding, this palm grows in dense forest and is known as *niniu*.

Genus GONIOSPERMA, genus novum

Spadix patenter ramosus; florum glomeruli spiraliter dispositi, ad majorem ramorum partem 3-flori; femineo intermedio, ♂ binis dextra sinistra juxtapositis, apicem ramorum versus ♂ geminis, glomeruli superficialiter fere axi inserti, sed axi infra in forma bractee triangulariter conspicue producta; flores ♂ symmetrici; calyx sepalis late rotundatis, nonnihil imbricatis; corolla petalis valvatis, circ. oblongis, apice obtusis; stamina 6 introrsa; filamenta applanata, inter longiora, apice geniculatim nonnihil inflexa; antherae lineares, thecis intus dense parallelis, connectivo dorsili angusto, dorso modice infra dimidiam insertae, basi incisae, apice paulo emarginatae vel

incisae; pistillodium cylindricum sat robustum, quam stamina brevius; flores ♀: sepala nonnihil imbricata rotundata; petala imbricata, apicibus triangularibus valvata; staminodia prob. 6, dentiformia; gynaecium oblongum, stigmatibus 3 triangularibus; ovulum totam longitudinem secus affixum; fructus inter majores, globosi, apice modice excentrico mamillato, carnosi; epicarpium nitens, fere laeve, minute haud dense gibbosum; mesocarpium carnosum, fibris nullis; endocarpium tenuiter osseum, prob. longitudinaliter 4-angulare; semen longitudinem secus acute 4-angulare, apice oblique excavato-obtusum; rhaphe in angulo totum latus secus pertensa, linearis; embryo basilaris; albumen homogenum. Palma altitudinis mediocris, foliis petiolatis, regulariter pinnatisectis; segmenta nervo primario unico, apice acuta.

The type of the genus is designated as *G. vitiense*. The genus is related to *Physokentia* Beccari, based on *P. tete* Beccari, of which I have not seen material. From description, the flowers of that species seem very similar to those of the new genus. The pinnae are premorse at the apex rather than acute. According to the description and figure, the seed of *Physokentia* is without distinct acute longitudinal edges, typical of the new genus. The rhaphe of *Physokentia* is not described.

The new species here described is certainly very near *G. thurstonii*, possibly even identical with it. The earlier species is known only from the fruit, so that a comparison of it with *G. vitiense* is hardly possible. In my opinion it is preferable to describe a new species rather than to establish a genus on a possible mixture of two species.

Goniosperma vitiense, species nova.

Palma caudice 4 m alto, petiolo 30 cm longo, lamina 3 m longa, segmentis utrinsecus circ. 40; rhachis prob. circ. dimidia frondis humiliter triangularis, lateribus nonnihil excavatis, subtus levissime rotundata, utrinque ut videtur fusco-furfuracea atque dense fusco-leproso-unctulata; segmenta lineari-lanceolata, fere rectilinearis, apice vix falcata, visa regulariter disposita, opposita vel fere, sequentia 6.5 cm circ. dissita, a rhachii patentia, sed leviter surgentia, 75 cm circ. longa, 6 cm circ. lata, maxima latitudine ut videtur in dimidia parte circ. sita, inferne sensim sed conspicue angustata, basi conspicue reduplicata, superne sensim attenuata, apice acuto haud producto, textura sat rigida, supra glabra, subtus praecipue inferne in nervis validioribus paleis badiis plus minus oblongis praedita et in nervis nervulisque minutissime fusco-lepidota, supra in nervis validioribus fere plicata; spadix infra frondes 50 cm circ. longus; rhachis appanato-subtriangularis, decidue breviter furfuracea; rami ramulique basi bractea modice triangulariter producta suffulti; rami primarii

patentes, visi ramulis 3-2 vel simplices; ramuli floriferi visi 16-20 cm longi, inferne i. s. 2 mm in diam., superne angustati, apice flexuosi, tenues; florum glomeruli in spira sat laxa dispositi, ad $\frac{2}{3}$ ramulum fere 3-flori, superne δ tantum geminis; glomeruli superficiales, axi infra in forma bractee triangularis acutae excavatae retrorsae producta; flores δ 6 mm et paulo ultra longi, ambitu elliptico-oblongi; calyx 2 mm altus, sepalis late rotundatis, margine brunneo ciliato; petala oblonga, sat crassa, i. s. dense nervoso-striata, apice obtusiuscula; stamina 6, in flore inaperto longitudine petalorum; filamenta geniculata, nonnihil inflexa, usque ad genu 3.5 mm longa, applanata; antherae lineares, 3.5 mm longae, basi nonnihil, apice plerumque breviter incisae, modice infra dimidium dorsum affixae; pistillodium cylindricum, sat robustum; flores ♀ quam masculi juxtapositi modice minores, juvenes breviter ovato-pyramidati; sepalia late rotundata, dorso umbonata; petala apice breviter triangularia valvata; staminodia ut videtur 6 dentiformia plus minus oblonga; gynaecium oblongum; stigmata 3-angularia; ovulum parietale, totum latus secus affixum; fructus bracteis obsoletis, insertione horizontali orbiculari, carnosus, cocti fere globosi, 2 cm in diam., rubri, nitentes, i. s. minutissime haud dense granulosi; perianthium 11 mm in diam., fere explanatum; calyx brevissime cupularis, humilis, 7.5 mm in diam., sepalis late imbricatis, late rotundatis, ciliatis, demum inciso-rotundato-lobulatis; petala late rotundata, demum breviter irregulariter inciso-lobulata, margine ciliata, extus i. s. nervoso-striata, apice breviter late triangulari-valvata; apex modice excentricus, obsolete mamillatus, brevissime late conicus; stigmatibus 3 minutis, linearibus, recurvatis; pericarpium siccum 0.5 mm in diam. vix superans; mesocarpium i. s. tenue, i. v. carnosum, endocarpium tenuiter osseum, $\frac{1}{4}$ mm circ. in diam., ut videtur longitudinaliter angulare; semen 1.4 cm longum, 0.9 cm in diam., longitudinem secus acute 4-angulare, inferne attenuatum, superne dilatatum, apice oblique leviter excavato-truncatum, angulis carinatis; rhaphe in angulo totum latus secus pertensa, rhapheos rami in semine non perfecte maturo haud certe recognoscendi, ex endocarpium facie interiore ut videtur minus numerosi, transverse currentes et descendentes, parce furcati et anastomosantes; embryo basilaris; albumen homogeneous.

Fiji: Vanua Levu, Thakaundrove, Mount Mariko, altitude 600-866 meters, November 14, 1933, A. C. Smith 417. type.

The species grows in dense forest and is known as *niuniu*.

Goniosperma thurstonii (Beccari), combinatio nova.

Cyphosperma ? thurstonii Beccari, Webbia, vol. 4, p. 272, 1914.

Fiji: Taveuni, altitude 700 meters, Thurston.

Genus TAVEUNIA, genus novum

Spadix duplicato-multiramisus, pedunculatus, ramis primariis inferioribus nonnihil pedunculatis, rhachi elongata; florum glomeruli spiraliter dispositi, sat scrobiculati, axi infra in labium rotundatum nonnihil producta, in ramulis inferne biflores, flore femineo et masculo juxtapositis, superne masculo solitario; flores δ symmetrici; calyx sepalis nonnihil imbricatis, late rotundatis; corolla petalis valvatis,

apice obtusis; stamina 6; filamenta libera, filiformia, sat evoluta, apice breviter inflexa; antherae oblongae, primo introrsae, dorso connectivo sat lato, in medio dorso affixae, basi incisae, apice integrae; pistilodium sat evolutum, longitudine staminum, cylindricum, validum, apice capitatum; flores ♀: sepala imbricata rotundata; petala imbricata, apice triangulariter valveta; staminodia dentiformia; gynaeceum oblongum, stigmatibus 3 triangularibus crassis; ovulum parietale. Palma altitudinis mediocris, foliis regulariter pinnatisectis; segmenta apice acuminata, acuta, nervis validis 3 percurta, margine haud incrassato.

It is very difficult to ascertain the character of the placentation in young female flowers, but it appears to be parietal, with the ovules affixed along the whole side of the ovary. The affinity of the new genus seems to be with *Akinokentia* Dammer, which also has symmetrical male flowers. That genus is distinguished from the new one by the great number of stamens and the quite different shape of the pistilodium.

Taveunia trichospadix, species nova.

"Palma 15-20 pedes alta, caudice ad basin 4-6 cm in diam. metiente; frondes 2½ pedes longae, erectae, superne cernuae;" petiolus ad apicem ut rhachis ad basin supra in dimidio planus vel leviter concavus, lateribus oblique excavatis, marginibus acutis, subtus minutissime fusco-lepidulosus; segmenta infima 3 visa regulariter disposita, directione haud variantia, horizontaliter a rhachi patentia, infimum nervis primariis 2 percursum, rhachin secus 1.3 cm latum, 32 cm longum, 2 cm fere latum, conspicue sigmoideum, longe anguste acuminatum, reliqua visa 3-nervia nervo primario unico, lateralibus 2 validis, rhachin secus 1 cm lata, conspicue sigmoidea, quam infimum longiora, circ. 2 cm et paulo ultra lata, a dimidio circ. inferne sensim angustata, superne longe anguste acuminata, summo apice destructo, sed certe acuto, costa media versus summum apicem lateri approximata, inter costam mediam et lateralem validam nervi magis conspicui 3-4; segmenta textura sat rigida, subtus pallidiora, in nervis nervulisque minutissime fusco-lepidulosa; spadix duplicato-ramosus; pedunculi fragmentum superius 13 cm longum visum, nonnihil applanatum, apice 6 mm latum, ut rami ramulique trichomatibus paleaceis, lacerato-ciliatis, i. s. pallide fuscis vel fere cinereis dense furfuraceum; rhachis et rami ramulique longitudinaliter angulosi; rhachis 26 cm longa, haud flexuosa; rami ramulique basi bractea conspicua plus minus triangulariter ovata suffulti, basi in angulo interiore nonnihil callosi, rami primarii inferiores 8 ramosi, 7 reliqui simplices, infimi 2 ramulos 7 emittentes, rami imi pedunculus 8.5 cm longus, rhachis 7 cm; ramuli vix curvati, haud flexuosi, longiores 18 cm, breviores circ. 12 cm longi, inter tenuiores, floriferi in parte validiore, inferiore circ. 2 mm, in dimidia 1 mm (in internodiis) in diam. metientes, superne angustati, apice tenui acuto; florum glomeruli nonnihil foveolati, spiraliter inferne sat laxae, superne densiuscule dispositi; fovea margine inferiore nonnihil, late rotundato-producta; glomeruli in ramulorum parte inferiore dimidiam vix aequante

2-flori, flore ♀ et ♂ juxtapositis, superne ♂ tantum; flores ♂ parvi, symmetrici, fere ovati, 2.5 mm longi, apice rotundati; calyx 1.5 mm fere altus, sepalis i. s. dorso carinatis, margine late rotundato ciliato, extus nervoso-striatis; petala valvata, sat firma, apice obtusa, dorso longitudinaliter conspicue nervoso-striata; stamina 6; filamenta libera, filiformia, sat evoluta, apice geniculato-inflexa; antherae oblongae, 1 mm longae, introrsae, in medio dorso affixae, basi incisae, apice integrae; pistilodium longitudine staminum, robustum, cylindricum, apice nonnihil capitatum; flores ♀ bracteis surgentibus, foveae labrium vix superantibus; sepala rotundata, late imbricata, longitudinaliter ut petala nervoso-striata; petala imbricata, apice triangulariter valvata; pistilodium obovato-oblongum, stigmatibus 3 triangularibus; ovulum parietale.

Fiji: Taveuni, October 2, 1881, C. Weber 112, type in herb. Berlin.

The species is said to be widely distributed in the hills of Taveuni, generally below 300 meters.